

**SAF-RC-107**

**100-H Remaining Sites Burial Grounds –**

**Soil Full Protocol**

**FINAL DATA PACKAGE**

**COMPLETE COPY OF DATA PACKAGE TO:**

Kathy Wendt H4-21

KW 3/26/15  
INITIAL/DATE

**COMMENTS:**

**SDG JP0920**

**SAF-RC-107**

Rad only

Chem only

Rad & Chem

Complete

Partial

**Waste Site: 100-H-28:5 Pipeline (replacement samples)**

Analytical Data Package Prepared For  
**Washington Closure Hanford**

Radiochemical Analysis By  
**TestAmerica Inc**

**2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.**

Assigned Laboratory Code: **TARL**

Data Package Contains 17 Pages

Report No.: **65062**

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
JP0920	RC-107	J1V461	J5C170434-1	M6DPV1AA	9M6DPV10	5074192



THE LEADER IN ENVIRONMENTAL TESTING

## Certificate of Analysis

Washington Hanford Closure  
2620 Fermi Avenue  
Richland, WA 99354

March 20, 2015

Attention: Joan Kessner

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SAF Number	:	RC-107
Date SDG Closed	:	March 17, 2015
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	JP0920
Data Deliverable	:	7-Day / Summary

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### **CASE NARRATIVE**

#### **I. Introduction**

On March 17, 2015, one soil sample was received at TestAmerica for chemistry analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

<b><u>WCH ID#</u></b>	<b><u>TARL ID#</u></b>	<b><u>MATRIX</u></b>	<b><u>DATE OF RECEIPT</u></b>
J1V461	M6DPV	SOIL	3/17/15

#### **II. Sample Receipt**

The sample was received in good condition and no anomalies were noted during check-in.

#### **III. Analytical Results/Methodology**

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analysis was:

**Chemical Analysis**  
Hexavalent Chromium by EPA method 7196A

Washington Closure Hanford  
March 20, 2015

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#### **IV. Quality Control**

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

#### **V. Comments**

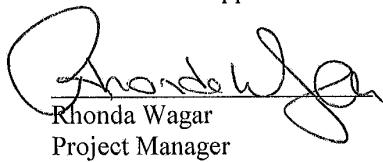
##### **Chemical Analysis**

###### **Hexavalent Chromium by EPA method 7196A:**

The LCS, batch blank, sample, sample duplicate (J1V461) and sample matrix spike (J1V461) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Rhonda Wagar  
Project Manager

## Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

**Results in this report relate only to the sample(s) analyzed.**

### Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship,  $R = \text{constants} * f(x,y,z,...)$ . The components ( $x,y,z$ ) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties ( $u_i$ ) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty ( $u_c$ ) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value ( $S/\sqrt{n}$ ), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

## Report Definitions

<b>Action Lev</b>	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
<b>Batch</b>	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
<b>Bias</b>	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
<b>COC No</b>	Chain of Custody Number assigned by the Client or TestAmerica.
<b>Count Error (#s)</b>	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
<b>CSU (#s) <math>u_c</math> Combined Standard Uncert.</b>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, $u_c$ the <i>combined standard uncertainty</i> . The uncertainty is absolute and in the same units as the result.
<b>(#s), Coverage Factor</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
<b>CRDL (RL)</b>	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
<b>Lc</b>	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgrndCnt} / \text{BkgrndCntMin}) / \text{SCntMin})) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
<b>Lot-Sample No</b>	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
<b>MDC MDA</b>	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \text{Sqrt}((\text{BkgrndCnt} / \text{BkgrndCntMin}) / \text{SCntMin}) + 2.71 / \text{SCntMin}) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability.
<b>Primary Detector</b>	The instrument identifier associated with the analysis of the sample aliquot.
<b>Ratio U-234/U-238</b>	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
<b>Rst/MDC</b>	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Rst/TotUcert</b>	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Report DB No</b>	Sample Identifier used by the report system. The number is based upon the first five digits of the <b>Work Order Number</b> .
<b>RER</b>	The equation Replicate Error Ratio = $(S-D) / [\sqrt{TPUs^2 + TPUs^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUs is the total uncertainty of the duplicate sample.
<b>SDG</b>	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
<b>Sum Rpt Alpha Spec Rst(s)</b>	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
<b>Work Order</b>	The LIMS software assign test specific identifier.
<b>Yield</b>	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

**Sample Results Summary**

Date: 20-Mar-15

**TestAmerica Inc TARL**

Ordered by Method, Batch No., Client Sample ID.

**Report No. : 65062****SDG No: JP0920**

Batch	Client Id Work Order	Parameter	Result +- CSU ( 2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
<b>5074192 7196_CR6</b>									
J1V461	M6DPV1AA	HEXCHROME	2.10E-01	+- 0.0E+00	mg/kg	N/A	1.55E-01	1.55E-01	
	M6DPV1AD	HEXCHROME	2.32E-01	+- 0.0E+00	mg/kg	N/A	1.55E-01	1.55E-01	10.0

No. of Results: 2

TestAmerica Inc RPD - Relative Percent Difference.

 rptTALRchSaSum  
mary2 V5.3.6.8  
A2002

**QC Results Summary**  
**TestAmerica Inc TARL**  
 Ordered by Method, Batch No, QC Type,.

Date: 20-Mar-15

Report No. : 65062

SDG No.: JP0920

Batch	Work Order	Parameter	Result +- CSU ( 2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
<b>7196_CR6</b>									
5074192	MATRIX SPIKE, J1V461								
	M6DPV1AC	HEXCHROME	2.85E+01 +- 0.0E+00		mg/kg	N/A	88%	-0.1	1.55E-01
5074192	LCS,								
	M6DTT1AC	HEXCHROME	1.88E+01 +- 0.0E+00		mg/kg	N/A	94%	-0.1	1.55E-01
5074192	BLANK QC,								
	M6DTT1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01
No. of Results: 3									

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TestAmerica Inc      Bias    - (Result/Expected)-1 as defined by ANSI N13.30.  
 rptSTLRchQcSum      U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.  
 mary V5.3.6.8  
 A2002

**FORM I**  
**SAMPLE RESULTS**

Date: 20-Mar-15

Lab Name: TestAmerica Inc  
 Lot-Sample No.: J5C170434-1  
 Client Sample ID: J1V461

Parameter	Result	Qual	Count	CSU (2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa size	Aliquot Size	Primary Detector
Batch: 5074192 HEXCHROME	7196_CRG 2.10E-01		Work Order: M6DPV1AA 0.0E+00		Report DB ID: 9M6DPV10 1.55E-01	mg/kg	N/A	(1.4) N/A	3/18/15 02:15 p	2.5077 g		
<b>No. of Results:</b> 1 <b>Comments:</b>												

**FORM II**  
**DUPLICATE RESULTS**

Date: 20-Mar-15

**Lab Name:** TestAmerica Inc  
**Lot-Sample No.:** J5C170434-1  
**Client Sample ID:** J1V461

Parameter	Result, Orig Rst	Count	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Rst/MDL, Yield	Rst/Tot/Cert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5074192	7196_CR6	Work Order: M6DPV1AD		Report DB ID: M6DPV1ER		Orig Sa DB ID: 9M6DPV10					
HEXCHROME	2.32E-01	0.0E+00	1.55E-01	mg/kg	N/A	(1.5)	3/18/15 02:15 p		2.5076	g	
	2.10E-01	RPD 10.0		1.55E-01		N/A					

No. of Results: 1      Comments:

**FORM II**  
**BLANK RESULTS**

Date: 20-Mar-15

Lab Name: TestAmerica Inc  
 Matrix: SOIL

Parameter	Result	Count	CSU	MDL,	Rpt Unit,	Rst/MDL,	Analysis,	Total Sa	Aliquot	Primary
	Qual	Error (2 s)	(2 s)	Lc	CRDL	Yield	Rst/TotUncert	Size	Size	Detector
Batch: 5074192	7196_CR6	Work Order:	M6DTT1AA	Report DB ID: M6DTT1AB						
HEXCHROME	1.55E-01	0.0E+00	1.55E-01	mg/kg	N/A	1.	3/18/15 02:15 p	2.5		
Comments:										
No. of Results:	1									

No. of Results: 1

Comments:

Date: 20-Mar-15

**FORM II**  
**LCS RESULTS**

**Lab Name:** TestAmerica Inc

**Matrix:** SOIL

**SDG:** JP0920  
**Report No.:** 65062

Parameter	Result	Count	CSU (2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 5074192	7196_CR6	0.0E+00	Work Order: M6DTT1AC	0.0E+00	Report DB ID: M6DTT1AS	N/A	2.00E+01		94%	3/18/15 02:15 p	2.5	
HEXCHROME	1.88E+01	1.55E-01	mg/kg		Rec Limits:	80	120	-0.1			g	

No. of Results: 1      Comments:

Date: 20-Mar-15

**FORM II**  
**MATRIX SPIKE RESULTS**

Lab Name: TestAmerica Inc  
Lot-Sample No.: J5C170434-1, JV461

SDG: JP0920  
Report No.: 65062

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDCIMDA	Rpt Unit	Yield	Rec- over	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 5074192 HEXCHROME	Work Order: M6DPV1AC 2.85E+01 2.10E-01	0.0E+00	1.55E-01	M6DPV1CW 0.0E+00	Orig Sa DB ID: N/A	9M6DPV10 87.66%	N/A	3.25E+01	3/18/15 02:15 p	2.5076 7196_CRF g		

Number of Results: 1

Comments:

**Richland Laboratory**  
**Data Review Check List**  
**Hexavalent Chromium**

Batch Number(s):	5074192	Lab Sample Numbers or SDG:	JP0920		
Method/Test/Parameter: Cr+6 <input type="checkbox"/> RL-WC-008(Aqueous) <input type="checkbox"/> RL-WC-003(Aqueous) <input checked="" type="checkbox"/> RL-WC-004(Solid)					
Review Item	Yes (✓)	No (✗)	N/A (✗)	2 <sup>nd</sup> Level Review (✓)	
<b>A. Initial Calibration</b>					
1. Performed at required frequency with required number of levels?	✓			✓	
2. Correlation coefficient greater than 0.97?	✓			✓	
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within 10% of expected?	✓			✓	
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓	
<b>B. Continuing Calibration</b>					
1. CCV analyzed at required frequency and all parameters within 10% of expected?	✓			✓	
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓	
<b>C. Sample Analysis</b>					
1. Were any samples with concentrations above the linear range diluted and reanalyzed?			✓	✓	
2. Were all sample holding times met?	✓			✓	
<b>D. QC Samples</b>					
1. All results for the preparation blank below limits?	✓			✓	
2. LCS percent recovery within 85-115%	✓			✓	
3. PbCrO <sub>4</sub> percent recovery within 75-125%?	✓			✓	
4. Sample and Duplicate within 20% (aqueous) or 35% (solid) RPD?	✓			✓	
5. MS or MS/MSD recoveries within 85-115% (aqueous) or 75-125% (solid)?	✓			✓	
6. On MS failure, PDMS within 85-115%?			✓	✓	
<b>E. Other</b>					
1. Are all nonconformances included and noted?			✓	✓	
2. Is the correct date and time of analysis shown?	✓			✓	
3. Did the analyst sign and date the front page of the analytical run?	✓			✓	
4. Correct methodology used?	✓			✓	
5. Transcriptions checked?	✓			✓	
6. Calculations checked at minimum frequency?	✓			✓	
7. Units checked?	✓			✓	

Comments on any "No" response or list NCM number:

Analyst J. Salter

Date 3/20/15 2<sup>nd</sup> Review Reb 2/16/15 Date 3/26/15

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-107-129	Page 1 of 3 3/17/15
Collector STOVE, QG	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 8-3	Data Turnaround 7 days
Project Designation 100-H Field Remediation	Sampling Location 100-H-285 Pipeline (replacement samples)		SAF No. RC-107		
Ice Chest No. WCH-12-40	Field Logbook No. EL-1627-09	COA 01H2852000	Method of Shipment Local Delivery		
Shipped To TestAmerica Richland	Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A		
Other Labs Shipped To TestAmerica Denver		Preservation Cool 4C			
	Type of Container GP				
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		No. of Container(s) 1			
		Volume 125mL			
Special Handling and/or Storage Cool 4C		Sample Analysis Chromium Hex -7196			
Sample No.	Matrix	Sample Date	Sample Time	SPECIAL INSTRUCTIONS	
J1V459	SOIL			JSC10434 Dr. 3-24-15	
J1V460	SOIL				
J1V461	SOIL	03/16/15	1101		
J1V462	SOIL				
J1V463	SOIL				
CHAIN OF POSSESSION					
Relinquished By/Removed From <i>John Stove</i>	Date/Time 3-16-15	Received By/Stored In <i>John Stove</i>	Date/Time 3-16-15		
Relinquished By/Removed From <i>C. Binkley</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Binkley</i>	Date/Time 3/16/15		
Relinquished By/Removed From <i>100 Battelle</i>	Date/Time 3/17/15	Received By/Stored In <i>100 Battelle</i>	Date/Time 3/16/15		
Relinquished By/Removed From <i>c. binkley</i>	Date/Time 3/17/15	Received By/Stored In <i>c. binkley</i>	Date/Time 3/17/15		
Relinquished By/Removed From <i>TestAmerica</i>	Date/Time 3/17/15	Received By/Stored In <i>TestAmerica</i>	Date/Time 3/17/15		
Final Sample Disposition	Disposal Method	Disposed By	Date/Time		



J5C170434

REVIEWED  
by  
K. Binkley

DATE  
3/17/15

JP0920

## Sample Check-in List

Date/Time Received: 3-17-15 | 1310Container GM Screen Result: (Airlock) 20 cpm Initials B  
Sample GM Screen Result (Sample Receiving) 20 cpm Initials BClient: WCH SDG #: JPD920 SAF #: RC-107 NA [ ]Lot Number: JSC1n0434Chain of Custody #: RC-107-129Shipping Container ID or Air Bill Number: Hand deliv. NA [ B ]Samples received inside shipping container/cooler/box  
Yes  Continue with 1 through 4. Initial appropriate response.  
No  Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes  No  No Custody Seal  ]  
 2. Custody Seals dated and signed? Yes  No  No Custody Seal  ]  
 3. Cooler temperature: 7.7 °C Ice NA [ ]  
 4. Vermiculite/packing materials is NA  Wet  Dry

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes  No   
 6. Number of samples received (Each sample may contain multiple bottles): 1  
 7. Containers received: 1x 125mL

8. Sample holding times exceeded? NA  Yes  No  appropriate sample labels  
 9. Samples have:  tape  hazard labels  custody seals  appropriate sample labels  
 10. Matrix:  A (FLT, Wipe, Solid, Soil)  I (Water)  S (Air, Niosh 7400)  T (Biological, Ni-63)

11. Samples:  
 are in good condition  are leaking  are broken  
 have air bubbles (Only for samples requiring no head space)  Other \_\_\_\_\_

12. Sample pH appropriate for analysis requested Yes  No  NA  ]  
 (If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO<sub>3</sub> added and pH after addition on table)  
 13. Were any anomalies identified in sample receipt? Yes  No  ]  
 14. Description of anomalies (include sample numbers): NA  ]

15. Sample Location, Sample Collector Listed on COC? \* Yes  No  ]  
 \*For documentation only. No corrective action needed.

16. Additional Information: W/A

[ ] Client/Courier denied temperature check. [ ] Client/Courier unpack cooler.

Sample Check-in List completed by Sample Custodian:

Signature: Sue BeckDate: 3-17-15Client Notification needed? Yes  No  Date: \_\_\_\_\_

By: \_\_\_\_\_

Person contacted: \_\_\_\_\_

 No action necessary; process as isProject Manager: Sandy WellerDate 3/18/15

3/18/2015 8:21:40 AM		Sample Preparation/Analysis							Balance Id:,				
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc.	, DW Alkaline Digestion by method 3060A EA Chromium, Hexavalent (7196A)								Pipet #:				
AnalyDueDate: 03/24/2015	5! CLIENT: HANFORD								Sep1 DT/Tm Tech:				
<b>Batch: 5074192</b>	<b>SOIL</b>	<b>PM, Quote: RW2, 27038</b>							<b>Prep Tech:</b>				
SEQ Batch, Test: None	All Tests: 5074192 DWEA,								<b>Prep Tech:</b>				
Work Ord. Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Amt/ Amt/Unit	Adj Amt/ (Un-Acidified)	QC Tracer Ppt Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:
<b>1 M6DPV-1-AA</b>													
J5C170434-1-SAMP 													
03/16/2015 11:01												Beta:	
<b>2 M6DPV-1-AC-S</b>													
J5C170434-1-MS 													
03/16/2015 11:01												Beta:	
<b>3 M6DPV-1-AD-X</b>													
J5C170434-1-DUP 													
03/16/2015 11:01												Beta:	
<b>4 M6DPV-1-AE-S</b>													
J5C170434-1-MS 													
03/16/2015 11:01												Beta:	
<b>5 M6DTT-1-AA-B</b>													
J5C150000-192-BLK 													
03/18/2015 08:21 pd												Beta:	
<b>6 M6DTT-1-AC-C</b>													
J5C150000-192-LCS 													
03/18/2015 08:21 pd												Beta:	
Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added											ISV - Insufficient Volume for Analysis	WO Cnt: 6	
TestAmerica Richland Wa.												iCOC v4.9.0	

3/18/2015 8:21:42 AM		Sample Preparation/Analysis							Balance Id.,	
AnalyDueDate:	03/24/2015	DW Alkaline Digestion by method 3060A EA Chromium, Hexavalent (7196A)							Pipet #:	
SEQ Batch, Test: None		Sep1 DT/Tm Tech:							Sep2 DT/Tm Tech:	
Batch: 5074192		mg/kg							Prep Tech:	
Comments:		Total Acidified/Unit	Total Amnt/Unit	Initial Aliquot Amnt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Fpt or Geometry	Count On   Off
Work Ord. Lot, Sample Date										Detector Id
										(24hr) Circle
										Init/Date
										Comments:
All Clients for Batch: 127612, Washington Closure Hanford LLC		Bechtel Hanford, Inc.							EW2, 27038	
M6DPV1AC-SAMP Constituent List:		LCL: 80 mg/kg							RDL: .1548 mg/kg	
HEXCHROME RDL: .1548		UCI:120 RPD:20 HXCR							UCI: .80 mg/kg	
M6DPV1AC-MS Constituent List:									RDL: .120 mg/kg	
M6DPV1AA-MS:									RDL: .20 mg/kg	
M6DTT1AA-BLK:										
M6DTT1AC-LCS:										
M6DEV1AA-SAMP Calc Info:		Blk Subt.: N Sci. Not.: Y ODRS: B							Blk Subt.: N Sci. Not.: Y ODRS: B	
Uncert Level (#s) .: 2 Decay to SdDt: Y		Blk Subt.: N Sci. Not.: Y ODRS: B							Blk Subt.: N Sci. Not.: Y ODRS: B	
M6DEV1AC-MS Calc Info:		Uncert Level (#s) .: 2 Decay to SdDt: Y							Blk Subt.: N Sci. Not.: Y ODRS: B	
M6DEV1AE-MS:		Uncert Level (#s) .: 2 Decay to SdDt: Y							Blk Subt.: N Sci. Not.: Y ODRS: B	
M6DTT1AA-BLK:		Uncert Level (#s) .: 2 Decay to SdDt: Y							Blk Subt.: N Sci. Not.: Y ODRS: B	
M6DTT1AC-LCS:		Uncert Level (#s) .: 2 Decay to SdDt: Y							Blk Subt.: N Sci. Not.: Y ODRS: B	

## ANALYTICAL REPORT

Job Number: 280-66649-1

SDG Number: JP0920

Job Description: SAF# RC-107

For:  
Washington Closure Hanford  
2620 Fermi Avenue  
Richland, WA 99354

Attention: Joan H Kessner



Approved for release.  
Kae E Yoder  
Senior Project Manager  
3/25/2015 4:43 PM

---

Kae E Yoder, Senior Project Manager  
4955 Yarrow Street, Arvada, CO, 80002  
(303)736-0190  
kae.yoder@testamericainc.com  
03/25/2015

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

**TestAmerica Laboratories, Inc.**

TestAmerica Denver 4955 Yarrow Street, Arvada, CO 80002

Tel (303) 736-0100 Fax (303) 431-7171 [www.testamericainc.com](http://www.testamericainc.com)



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## CASE NARRATIVE

**Client: Washington Closure Hanford**

**Project: WASHINGTON CLOSURE HANFORD**

**Job Number: 280-66649-1**

**SDG #: JP0920**  
**SAF#: RC-107**

**Date SDG Closed: March 18, 2015**  
**Data Deliverable: 7 Day / Summary**

<b>CLIENT ID</b>	<b>LAB ID</b>	<b>ANALYSES REQUESTED</b>	<b>ANALYSES PERFORMED</b>
J1V461	280-66649-1	6010/7471/353.2/8310/8082/8081	6010B/7471A353.2/8310/8082/8081A

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this Case Narrative. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the signature on the Report Cover.

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

This report includes reporting limits (RLs) less than TestAmerica Denver's practical quantitation limits. These reporting limits are being used specifically at the client's request to meet the needs of this project. Please note that data are not normally reported to these levels without qualification, since they are inherently less reliable and potentially less defensible than required by the current NELAC standards.

The results, RLs and MDLs included in this report have been adjusted for dry weight, as appropriate.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

### **RECEIPT**

The sample was received on 3/18/2015 9:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3° C.

### **GC SEMIVOLATILES - SW846 8081A - Pesticides**

No anomalies were encountered.

### **GC SEMIVOLATILES - SW846 8082 - PCBs**

No anomalies were encountered.

### **HPLC - SW846 8310 - PAHs**

No anomalies were encountered.

### **TOTAL METALS - SW846 6010B/7471A**

Serial dilution of a digestate in batch 280-268612 indicates that physical and chemical interferences are present for Nickel. The result has been flagged with an "X".

Serial dilution of a digestate in batch 280-269504 indicates that physical and chemical interferences are present for Copper, Iron and Zinc. Results have been flagged with an "X".

Low levels of Aluminum, Barium, Calcium, Chromium, Magnesium, Manganese and Copper are present in the method blanks associated with batches 280-268612 and 280-269504, respectively. Because the concentrations in the method blanks are not present at levels greater than half the reporting limit or the associated sample amounts are greater than twenty times the method blank concentration, corrective action is deemed unnecessary.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1V461; therefore, control limits are not applicable.

Silicon was recovered outside the control limits in the Matrix Spike performed on sample J1V461, and the associated sample result has been flagged "N". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

**GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N**

The duplicate analysis of sample J1V461 exceeded the RPD limit, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

## DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-66649-1

Sdg Number: JP0920

Lab Section	Qualifier	Description
GC Semi VOA	U	Analyzed for but not detected.
HPLC/IC	U	Analyzed for but not detected.
Metals	U	Analyzed for but not detected.
	B	Estimated result. Result is less than the RL, but greater than MDL
	4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
	N	Recovery exceeds upper or lower control limits
	X	Serial dilution in the analytical batch indicates that physical and chemical interferences are present.
General Chemistry	U	Analyzed for but not detected.
	B	Estimated result. Result is less than the RL, but greater than MDL
	M	Sample duplicate precision not met.

## SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-66649-1	J1V461	Solid	03/16/2015 1101	03/18/2015 0915

## METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

Description	Lab Location	Method	Preparation Method
<b>Matrix: Solid</b>			
Organochlorine Pesticides (GC)	TAL DEN	SW846 8081A	
Ultrasonic Extraction	TAL DEN		SW846 3550C
Polychlorinated Biphenyls (PCBs) by Gas Chromatography	TAL DEN	SW846 8082	
Ultrasonic Extraction	TAL DEN		SW846 3550C
PAHs (HPLC)	TAL DEN	SW846 8310	
Ultrasonic Extraction	TAL DEN		SW846 3550C
Metals (ICP)	TAL DEN	SW846 6010B	
Preparation, Metals	TAL DEN		SW846 3050B
Mercury (CVAA)	TAL DEN	SW846 7471A	
Preparation, Mercury	TAL DEN		SW846 7471A
Nitrogen, Nitrate-Nitrite	TAL DEN	MCAWW 353.2	
Deionized Water Leaching Procedure	TAL DEN		ASTM DI Leach
ASTM D-2216	TAL DEN	ASTM D-2216	

### Lab References:

TAL DEN = TestAmerica Denver

### Method References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

## METHOD / ANALYST SUMMARY

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

Method	Analyst	Analyst ID
SW846 8081A	Wells, David A	DAW
SW846 8082	Jackson, Todd D	TDJ
SW846 6010B	Rhoades, Chris R	CRR
SW846 6010B	Scott, Samantha J	SJS
SW846 7471A	Sexton, Michael L	MLS
MCAWW 353.2	Janssen, Elizabeth L	ELJ
ASTM D-2216	Cherry, Scott V	SVC
SW846 8310	Fiedler, Heather K	HKF

## **SAMPLE RESULTS**

## Analytical Data

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Client Sample ID:** J1V461

Lab Sample ID: 280-66649-1  
Client Matrix: Solid

% Moisture: 7.5

Date Sampled: 03/16/2015 1101  
Date Received: 03/18/2015 0915

### 8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-268776	Initial Weight/Volume:	30.0 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	03/20/2015 1751			Injection Volume:	1 uL
Prep Date:	03/19/2015 1542			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.59	U	0.59	1.8
4,4'-DDE		0.26	U	0.26	1.8
4,4'-DDT		0.64	U	0.64	1.8
Aldrin		0.27	U	0.27	1.8
alpha-BHC		0.23	U	0.23	1.8
beta-BHC		0.72	U	0.72	1.8
delta-BHC		0.43	U	0.43	1.8
gamma-BHC (Lindane)		0.50	U	0.50	1.8
Heptachlor		0.23	U	0.23	1.8
Heptachlor epoxide		0.46	U	0.46	1.8
Endosulfan I		0.19	U	0.19	1.8
Endosulfan II		0.31	U	0.31	1.8
Endosulfan sulfate		0.30	U	0.30	1.8
Endrin		0.33	U	0.33	1.8
Endrin aldehyde		0.18	U	0.18	1.8
Endrin ketone		0.53	U	0.53	1.8
gamma-Chlordane		0.29	U	0.29	1.8
Methoxychlor		0.49	U	0.49	3.6
alpha-Chlordane		0.35	U	0.35	1.8
Dieldrin		0.23	U	0.23	1.8
Toxaphene		17	U	17	180
Surrogate		%Rec	Qualifier	Acceptance Limits	
Tetrachloro-m-xylene		82		59 - 115	
Decachlorobiphenyl		94		63 - 124	

**Analytical Data**

Client: Washington Closure Hanford

Job Number: 280-66649-1

Sdg Number: JP0920

Client Sample ID: **J1V461**

Lab Sample ID: 280-66649-1

Date Sampled: 03/16/2015 1101

Client Matrix: Solid

% Moisture: 7.5

Date Received: 03/18/2015 0915

**8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography**

Analysis Method:	8082	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-268817	Initial Weight/Volume:	30.9 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	03/20/2015 1805			Injection Volume:	1 uL
Prep Date:	03/19/2015 1727			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.9	U	2.9	10
Aroclor 1221		8.4	U	8.4	17
Aroclor 1232		2.1	U	2.1	10
Aroclor 1242		4.9	U	4.9	10
Aroclor 1248		4.9	U	4.9	10
Aroclor 1254		2.7	U	2.7	10
Aroclor 1260		2.7	U	2.7	10
Surrogate		%Rec	Qualifier	Acceptance Limits	
Decachlorobiphenyl		75		59 - 130	
Tetrachloro-m-xylene		77		53 - 128	

**Analytical Data**

Client: Washington Closure Hanford

Job Number: 280-66649-1

Sdg Number: JP0920

Client Sample ID: **J1V461**

Lab Sample ID: 280-66649-1

Date Sampled: 03/16/2015 1101

Client Matrix: Solid

% Moisture: 7.5

Date Received: 03/18/2015 0915

**8310 PAHs (HPLC)**

Analysis Method:	8310	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-268797	Initial Weight/Volume:	30.7 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	03/20/2015 1032			Injection Volume:	20 uL
Prep Date:	03/19/2015 1634			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	110
Acenaphthylene		9.5	U	9.5	110
Anthracene		3.2	U	3.2	21
Benzo[a]anthracene		3.4	U	3.4	16
Benzo[a]pyrene		6.8	U	6.8	16
Benzo[b]fluoranthene		4.4	U	4.4	16
Benzo[g,h,i]perylene		7.6	U	7.6	32
Benzo[k]fluoranthene		4.2	U	4.2	16
Chrysene		5.1	U	5.1	42
Dibenzo(a,h)anthracene		12	U	12	32
Fluoranthene		14	U	14	42
Fluorene		5.6	U	5.6	32
Indeno[1,2,3-cd]pyrene		13	U	13	32
Naphthalene		13	U	13	110
Phenanthrene		13	U	13	42
Pyrene		13	U	13	42
Surrogate		%Rec	Qualifier	Acceptance Limits	
Terphenyl-d14 (SUR)		80		72 - 115	

## Analytical Data

Client: Washington Closure Hanford

Job Number: 280-66649-1

Sdg Number: JP0920

**Client Sample ID:** J1V461

Lab Sample ID: 280-66649-1

Date Sampled: 03/16/2015 1101

Client Matrix: Solid

% Moisture: 7.5

Date Received: 03/18/2015 0915

### 6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-268885	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-268612	Lab File ID:	25D031915.asc
Dilution:	1.0			Initial Weight/Volume:	1.11 g
Analysis Date:	03/19/2015 1922			Final Weight/Volume:	100 mL
Prep Date:	03/19/2015 0815				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		10800		1.5	4.9
Antimony		0.37	U	0.37	0.58
Arsenic		5.0		0.64	0.97
Barium		92.6		0.074	0.49
Beryllium		0.31		0.032	0.19
Boron		2.4		0.95	1.9
Cadmium		0.19		0.040	0.19
Calcium		7130		13.7	48.7
Chromium		21.5		0.056	0.19
Cobalt		6.7		0.097	0.97
Magnesium		6770		3.6	19.5
Manganese		314		0.097	0.97
Molybdenum		0.25	U	0.25	1.9
Nickel		18.9	X	0.12	3.9
Potassium		1400		39.9	292
Selenium		0.84	U	0.84	0.97
Silicon		285	N	5.5	9.7
Silver		0.16	U	0.16	0.19
Sodium		289		57.5	117
Vanadium		40.6		0.092	1.9

Analysis Method:	6010B	Analysis Batch:	280-269682	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-269504	Lab File ID:	26AA032515.asc
Dilution:	1.0			Initial Weight/Volume:	1.11 g
Analysis Date:	03/25/2015 1353			Final Weight/Volume:	100 mL
Prep Date:	03/25/2015 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Copper		15.8	X	0.21	0.97
Iron		18200	X	3.7	4.9
Lead		5.3		0.26	0.49
Zinc		44.0	X	0.39	0.97

### 7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-268911	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-268692	Lab File ID:	150319ac.txt
Dilution:	1.0			Initial Weight/Volume:	0.57 g
Analysis Date:	03/19/2015 1530			Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0063	U	0.0063	0.019

**Analytical Data**

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920**General Chemistry****Client Sample ID:** J1V461

Lab Sample ID: 280-66649-1

Date Sampled: 03/16/2015 1101

Client Matrix: Solid

% Moisture: 7.5

Date Received: 03/18/2015 0915

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	0.89	M	mg/Kg	0.38	0.79	1.0	353.2
	Analysis Batch: 280-269379		Analysis Date: 03/23/2015 1555				Dry/Wt Corrected: Y
Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	7.5		%	0.10	0.10	1.0	D-2216
	Analysis Batch: 280-269296		Analysis Date: 03/23/2015 1155				Dry/Wt Corrected: N

# **QUALITY CONTROL RESULTS**

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

### Surrogate Recovery Report

#### 8081A\_Organochlorine Pesticides (GC)

##### Client Matrix: Solid

Lab Sample ID	Client Sample ID	TCX1 %Rec	DCB1 %Rec
280-66649-1	J1V461	82	94
MB 280-268776/1-A		78	88
LCS 280-268776/2-A		82	94
280-66649-1 MS	J1V461 MS	83	98
280-66649-1 MSD	J1V461 MSD	85	101

##### Surrogate

TCX = Tetrachloro-m-xylene  
DCB = Decachlorobiphenyl

##### Acceptance Limits

59-115  
63-124

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

### Surrogate Recovery Report

#### 8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

##### Client Matrix: Solid

Lab Sample ID	Client Sample ID	DCB1 %Rec	TCX1 %Rec
280-66649-1	J1V461	75	77
MB 280-268817/1-A		79	75
LCS 280-268817/2-A		83	77
280-66649-1 MS	J1V461 MS	79	78
280-66649-1 MSD	J1V461 MSD	75	73

Surrogate	Acceptance Limits
DCB = Decachlorobiphenyl	59-130
TCX = Tetrachloro-m-xylene	53-128

**Quality Control Results**

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920**Surrogate Recovery Report****8310 PAHs (HPLC)****Client Matrix: Solid**

Lab Sample ID	Client Sample ID	TPH1 %Rec
280-66649-1	J1V461	80
MB 280-268797/1-A		84
LCS 280-268797/2-A		89
280-66649-1 MS	J1V461 MS	87
280-66649-1 MSD	J1V461 MSD	83

Surrogate

TPH = Terphenyl-d14 (SUR)

Acceptance Limits

72-115

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Method Blank - Batch: 280-268776**

**Method: 8081A  
Preparation: 3550C**

Lab Sample ID:	MB 280-268776/1-A	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-268776	Lab File ID:	03200025.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1841	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	03/19/2015 1542			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
4,4'-DDD	0.55	U	0.55	1.7
4,4'-DDE	0.24	U	0.24	1.7
4,4'-DDT	0.59	U	0.59	1.7
Aldrin	0.25	U	0.25	1.7
alpha-BHC	0.21	U	0.21	1.7
beta-BHC	0.66	U	0.66	1.7
delta-BHC	0.40	U	0.40	1.7
gamma-BHC (Lindane)	0.46	U	0.46	1.7
Heptachlor	0.21	U	0.21	1.7
Heptachlor epoxide	0.43	U	0.43	1.7
Endosulfan I	0.18	U	0.18	1.7
Endosulfan II	0.29	U	0.29	1.7
Endosulfan sulfate	0.28	U	0.28	1.7
Endrin	0.31	U	0.31	1.7
Endrin aldehyde	0.17	U	0.17	1.7
Endrin ketone	0.49	U	0.49	1.7
gamma-Chlordane	0.27	U	0.27	1.7
Methoxychlor	0.45	U	0.45	3.3
alpha-Chlordane	0.32	U	0.32	1.7
Dieldrin	0.21	U	0.21	1.7
Toxaphene	16	U	16	170

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	78	59 - 115
Decachlorobiphenyl	88	63 - 124

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Lab Control Sample - Batch: 280-268776**

**Method: 8081A**  
**Preparation: 3550C**

Lab Sample ID:	LCS 280-268776/2-A	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-268776	Lab File ID:	03200021.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1734	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	03/19/2015 1542			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
4,4'-DDD	16.7	14.3	86	69 - 126	
4,4'-DDE	16.7	14.1	84	71 - 116	
4,4'-DDT	16.7	15.0	90	67 - 132	
Aldrin	16.7	15.0	90	69 - 116	
alpha-BHC	16.7	14.9	89	65 - 122	
beta-BHC	16.7	14.3	86	62 - 121	
delta-BHC	16.7	14.7	88	67 - 122	
gamma-BHC (Lindane)	16.7	14.6	87	66 - 120	
Heptachlor	16.7	14.8	89	61 - 126	
Heptachlor epoxide	16.7	14.7	88	71 - 119	
Endosulfan I	16.7	13.2	79	67 - 115	
Endosulfan II	16.7	13.4	80	69 - 120	
Endosulfan sulfate	16.7	16.0	96	69 - 126	
Endrin	16.7	15.4	93	69 - 129	
Endrin aldehyde	16.7	13.2	79	41 - 128	
Endrin ketone	16.7	13.6	82	70 - 125	
gamma-Chlordane	16.7	14.4	86	69 - 122	
Methoxychlor	16.7	16.3	98	65 - 139	
alpha-Chlordane	16.7	14.3	86	71 - 118	
Dieldrin	16.7	14.8	89	71 - 120	
Surrogate		% Rec		Acceptance Limits	
Tetrachloro-m-xylene		82		59 - 115	
Decachlorobiphenyl		94		63 - 124	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Matrix Spike/  
Matrix Spike Duplicate Recovery Report - Batch: 280-268776**

**Method: 8081A  
Preparation: 3550C**

MS Lab Sample ID:	280-66649-1	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-268776	Lab File ID:	03200023.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.2 g
Analysis Date:	03/20/2015 1808			Final Weight/Volume:	10 mL
Prep Date:	03/19/2015 1542			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-66649-1	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-268776	Lab File ID:	03200024.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.7 g
Analysis Date:	03/20/2015 1825			Final Weight/Volume:	10 mL
Prep Date:	03/19/2015 1542			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
4,4'-DDD	91	93	69 - 126	0	20		
4,4'-DDE	88	88	71 - 116	1	15		
4,4'-DDT	96	97	67 - 132	1	29		
Aldrin	91	92	69 - 116	0	50		
alpha-BHC	89	92	65 - 122	2	17		
beta-BHC	89	92	62 - 121	1	17		
delta-BHC	92	95	67 - 122	1	19		
gamma-BHC (Lindane)	90	92	66 - 120	1	24		
Heptachlor	95	97	61 - 126	0	18		
Heptachlor epoxide	92	93	71 - 119	0	18		
Endosulfan I	81	83	67 - 115	0	26		
Endosulfan II	84	85	69 - 120	0	20		
Endosulfan sulfate	97	104	69 - 126	5	22		
Endrin	99	100	69 - 129	0	30		
Endrin aldehyde	84	85	41 - 128	0	29		
Endrin ketone	85	86	70 - 125	1	20		
gamma-Chlordane	82	85	69 - 122	2	21		
Methoxychlor	100	101	65 - 139	1	23		
alpha-Chlordane	89	90	71 - 118	0	18		
Dieldrin	92	93	71 - 120	1	25		
Surrogate	MS % Rec		MSD % Rec		Acceptance Limits		
Tetrachloro-m-xylene	83		85		59 - 115		
Decachlorobiphenyl	98		101		63 - 124		

**Quality Control Results**

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920**Matrix Spike/  
Matrix Spike Duplicate Recovery Report - Batch: 280-268776****Method: 8081A  
Preparation: 3550C**

MS Lab Sample ID:	280-66649-1	Units:	ug/Kg	MSD Lab Sample ID:	280-66649-1
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/20/2015 1808			Analysis Date:	03/20/2015 1825
Prep Date:	03/19/2015 1542			Prep Date:	03/19/2015 1542
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
4,4'-DDD	0.59 U	17.9	17.6	16.3	16.3
4,4'-DDE	0.26 U	17.9	17.6	15.7	15.6
4,4'-DDT	0.64 U	17.9	17.6	17.1	17.1
Aldrin	0.27 U	17.9	17.6	16.3	16.3
alpha-BHC	0.23 U	17.9	17.6	15.9	16.2
beta-BHC	0.72 U	17.9	17.6	15.9	16.1
delta-BHC	0.43 U	17.9	17.6	16.5	16.6
gamma-BHC (Lindane)	0.50 U	17.9	17.6	16.0	16.2
Heptachlor	0.23 U	17.9	17.6	17.0	17.0
Heptachlor epoxide	0.46 U	17.9	17.6	16.4	16.4
Endosulfan I	0.19 U	17.9	17.6	14.6	14.5
Endosulfan II	0.31 U	17.9	17.6	15.0	15.0
Endosulfan sulfate	0.30 U	17.9	17.6	17.4	18.4
Endrin	0.33 U	17.9	17.6	17.7	17.6
Endrin aldehyde	0.18 U	17.9	17.6	15.1	15.0
Endrin ketone	0.53 U	17.9	17.6	15.3	15.1
gamma-Chlordane	0.29 U	17.9	17.6	14.7	14.9
Methoxychlor	0.49 U	17.9	17.6	17.8	17.7
alpha-Chlordane	0.35 U	17.9	17.6	16.0	15.9
Dieldrin	0.23 U	17.9	17.6	16.5	16.4

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

### Method Blank - Batch: 280-268817

**Method: 8082**  
**Preparation: 3550C**

Lab Sample ID:	MB 280-268817/1-A	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-268817	Lab File ID:	0320B020.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1722	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	03/19/2015 1727			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Aroclor 1016	2.8	U	2.8	10
Aroclor 1221	8.0	U	8.0	17
Aroclor 1232	2.0	U	2.0	10
Aroclor 1242	4.7	U	4.7	10
Aroclor 1248	4.7	U	4.7	10
Aroclor 1254	2.6	U	2.6	10
Aroclor 1260	2.6	U	2.6	10

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	79	59 - 130
Tetrachloro-m-xylene	75	53 - 128

### Lab Control Sample - Batch: 280-268817

**Method: 8082**  
**Preparation: 3550C**

Lab Sample ID:	LCS 280-268817/2-A	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-268817	Lab File ID:	0320B021.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1744	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	03/19/2015 1727			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aroclor 1016	33.3	23.7	71	54 - 132	
Aroclor 1260	33.3	25.0	75	62 - 129	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	83	59 - 130
Tetrachloro-m-xylene	77	53 - 128

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Matrix Spike/  
Matrix Spike Duplicate Recovery Report - Batch: 280-268817**

**Method: 8082  
Preparation: 3550C**

MS Lab Sample ID:	280-66649-1	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-268817	Lab File ID:	0320B023.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.6 g
Analysis Date:	03/20/2015 1826			Final Weight/Volume:	5 mL
Prep Date:	03/19/2015 1727			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-66649-1	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-268817	Lab File ID:	0320B024.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.7 g
Analysis Date:	03/20/2015 1848			Final Weight/Volume:	5 mL
Prep Date:	03/19/2015 1727			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Aroclor 1016	72	71	54 - 132	3	26		
Aroclor 1260	72	71	62 - 129	1	26		
Surrogate	MS % Rec		MSD % Rec		Acceptance Limits		
Decachlorobiphenyl	79		75		59 - 130		
Tetrachloro-m-xylene	78		73		53 - 128		

**Matrix Spike/  
Matrix Spike Duplicate Recovery Report - Batch: 280-268817**

**Method: 8082  
Preparation: 3550C**

MS Lab Sample ID:	280-66649-1	Units:	ug/Kg	MSD Lab Sample ID:	280-66649-1
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/20/2015 1826			Analysis Date:	03/20/2015 1848
Prep Date:	03/19/2015 1727			Prep Date:	03/19/2015 1727
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
	Result/Qual	Amount				
Aroclor 1016	2.9	U	35.3	35.2	25.5	24.8
Aroclor 1260	2.7	U	35.3	35.2	25.4	25.1

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Method Blank - Batch: 280-268797**

**Method: 8310  
Preparation: 3550C**

Lab Sample ID:	MB 280-268797/1-A	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-268797	Lab File ID:	G0320006.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 0930	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	03/19/2015 1634			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Acenaphthene	10	U	10	100
Acenaphthylene	9.0	U	9.0	100
Anthracene	3.1	U	3.1	20
Benzo[a]anthracene	3.2	U	3.2	15
Benzo[a]pyrene	6.4	U	6.4	15
Benzo[b]fluoranthene	4.2	U	4.2	15
Benzo[g,h,i]perylene	7.2	U	7.2	30
Benzo[k]fluoranthene	3.9	U	3.9	15
Chrysene	4.8	U	4.8	40
Dibenz(a,h)anthracene	11	U	11	30
Fluoranthene	13	U	13	40
Fluorene	5.3	U	5.3	30
Indeno[1,2,3-cd]pyrene	12	U	12	30
Naphthalene	12	U	12	100
Phenanthrene	12	U	12	40
Pyrene	12	U	12	40
Surrogate	% Rec		Acceptance Limits	
Terphenyl-d14 (SUR)	84		72 - 115	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

### Lab Control Sample - Batch: 280-268797

**Method: 8310**  
**Preparation: 3550C**

Lab Sample ID:	LCS 280-268797/2-A	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-268797	Lab File ID:	G0320007.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1001	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	03/19/2015 1634			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	2000	1690	84	75 - 116	
Acenaphthylene	2000	1680	84	66 - 115	
Anthracene	2000	1640	82	71 - 115	
Benzo[a]anthracene	2000	1800	90	77 - 120	
Benzo[a]pyrene	2000	1780	89	69 - 115	
Benzo[b]fluoranthene	2000	1760	88	56 - 115	
Benzo[g,h,i]perylene	2000	1990	100	72 - 120	
Benzo[k]fluoranthene	2000	1820	91	76 - 115	
Chrysene	2000	1770	88	79 - 115	
Dibenzo(a,h)anthracene	2000	1740	87	72 - 115	
Fluoranthene	2000	1770	89	77 - 115	
Fluorene	2000	1780	89	77 - 115	
Indeno[1,2,3-cd]pyrene	2000	1790	90	78 - 115	
Naphthalene	2000	1600	80	68 - 120	
Phenanthrene	2000	1680	84	75 - 115	
Pyrene	2000	1860	93	72 - 115	
Surrogate		% Rec		Acceptance Limits	
Terphenyl-d14 (SUR)		89		72 - 115	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Matrix Spike/  
Matrix Spike Duplicate Recovery Report - Batch: 280-268797**

**Method: 8310  
Preparation: 3550C**

MS Lab Sample ID:	280-66649-1	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-268797	Lab File ID:	G0320009.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.7 g
Analysis Date:	03/20/2015 1102			Final Weight/Volume:	4 mL
Prep Date:	03/19/2015 1634			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-66649-1	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-268797	Lab File ID:	G0320010.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.7 g
Analysis Date:	03/20/2015 1133			Final Weight/Volume:	4 mL
Prep Date:	03/19/2015 1634			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Acenaphthene	83	79	75 - 116	5	20		
Acenaphthylene	82	77	66 - 115	6	20		
Anthracene	81	76	71 - 115	6	20		
Benzo[a]anthracene	87	84	77 - 120	4	20		
Benzo[a]pyrene	86	82	69 - 115	4	20		
Benzo[b]fluoranthene	85	82	56 - 115	4	20		
Benzo[g,h,i]perylene	96	92	72 - 120	4	20		
Benzo[k]fluoranthene	88	85	76 - 115	4	20		
Chrysene	85	82	79 - 115	4	20		
Dibeno(a,h)anthracene	84	81	72 - 115	4	20		
Fluoranthene	87	83	77 - 115	5	20		
Fluorene	88	82	77 - 115	7	20		
Indeno[1,2,3-cd]pyrene	86	83	78 - 115	4	20		
Naphthalene	79	75	68 - 120	5	20		
Phenanthrene	83	78	75 - 115	5	20		
Pyrene	92	87	72 - 115	5	20		
Surrogate	MS % Rec		MSD % Rec		Acceptance Limits		
Terphenyl-d14 (SUR)	87		83		72 - 115		

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Matrix Spike/  
Matrix Spike Duplicate Recovery Report - Batch: 280-268797**

**Method: 8310  
Preparation: 3550C**

MS Lab Sample ID:	280-66649-1	Units:	ug/Kg	MSD Lab Sample ID:	280-66649-1
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/20/2015 1102			Analysis Date:	03/20/2015 1133
Prep Date:	03/19/2015 1634			Prep Date:	03/19/2015 1634
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Acenaphthene	11	U	2110	2110	1760
Acenaphthylene	9.5	U	2110	2110	1740
Anthracene	3.2	U	2110	2110	1710
Benzo[a]anthracene	3.4	U	2110	2110	1840
Benzo[a]pyrene	6.8	U	2110	2110	1810
Benzo[b]fluoranthene	4.4	U	2110	2110	1790
Benzo[g,h,i]perylene	7.6	U	2110	2110	2030
Benzo[k]fluoranthene	4.2	U	2110	2110	1860
Chrysene	5.1	U	2110	2110	1800
Dibenz(a,h)anthracene	12	U	2110	2110	1770
Fluoranthene	14	U	2110	2110	1840
Fluorene	5.6	U	2110	2110	1850
Indeno[1,2,3-cd]pyrene	13	U	2110	2110	1820
Naphthalene	13	U	2110	2110	1670
Phenanthrene	13	U	2110	2110	1750
Pyrene	13	U	2110	2110	1940

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Method Blank - Batch: 280-268612**

**Method: 6010B**  
**Preparation: 3050B**

Lab Sample ID:	MB 280-268612/1-A	Analysis Batch:	280-268885	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-268612	Lab File ID:	25D031915.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	03/19/2015 1917	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/19/2015 0815				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	2.90	B	1.6	5.0
Antimony	0.38	U	0.38	0.60
Arsenic	0.66	U	0.66	1.0
Barium	0.0800	B	0.076	0.50
Beryllium	0.033	U	0.033	0.20
Boron	0.98	U	0.98	2.0
Cadmium	0.041	U	0.041	0.20
Calcium	14.49	B	14.1	50.0
Chromium	0.103	B	0.058	0.20
Cobalt	0.10	U	0.10	1.0
Magnesium	3.91	B	3.7	20.0
Manganese	0.119	B	0.10	1.0
Molybdenum	0.26	U	0.26	2.0
Nickel	0.12	U	0.12	4.0
Potassium	41.0	U	41.0	300
Selenium	0.86	U	0.86	1.0
Silicon	5.7	U	5.7	10.0
Silver	0.16	U	0.16	0.20
Sodium	59.0	U	59.0	120
Vanadium	0.094	U	0.094	2.0

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Lab Control Sample - Batch: 280-268612**

**Method: 6010B**  
**Preparation: 3050B**

Lab Sample ID:	LCS 280-268612/2-A	Analysis Batch:	280-268885	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-268612	Lab File ID:	25D031915.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	03/19/2015 1920	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/19/2015 0815				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	195.3	98	82 - 116	
Antimony	50.0	50.26	101	82 - 110	
Arsenic	100	96.44	96	85 - 110	
Barium	200	185.1	93	87 - 112	
Beryllium	5.00	4.68	94	84 - 114	
Boron	100	100.1	100	80 - 120	
Cadmium	10.0	10.32	103	87 - 110	
Calcium	5000	4565	91	82 - 114	
Chromium	20.0	18.72	94	84 - 114	
Cobalt	50.0	48.11	96	87 - 110	
Magnesium	5000	4779	96	90 - 110	
Manganese	50.0	49.11	98	88 - 110	
Molybdenum	100	100.5	100	86 - 110	
Nickel	50.0	47.99	96	87 - 110	
Potassium	5000	4744	95	89 - 110	
Selenium	200	195.2	98	83 - 110	
Silicon	1000	95.74	10	10 - 70	
Silver	5.00	5.43	109	87 - 114	
Sodium	5000	4969	99	90 - 112	
Vanadium	50.0	49.69	99	88 - 110	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Matrix Spike - Batch: 280-268612**

**Method: 6010B**

**Preparation: 3050B**

Lab Sample ID:	280-66649-1	Analysis Batch:	280-268885	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-268612	Lab File ID:	25D031915.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.09 g
Analysis Date:	03/19/2015 1930	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/19/2015 0815				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	10800	198	13450	1342	50 - 200	4
Antimony	0.37	U	49.6	22.28	45	20 - 200
Arsenic	5.0		99.2	91.20	87	76 - 111
Barium	92.6		198	271.7	90	52 - 159
Beryllium	0.31		4.96	4.58	86	72 - 105
Boron	2.4		99.2	88.32	87	80 - 120
Cadmium	0.19		9.92	9.45	93	40 - 130
Calcium	7130		4960	12150	101	43 - 165
Chromium	21.5		19.8	41.13	99	70 - 200
Cobalt	6.7		49.6	48.86	85	72 - 106
Magnesium	6770		4960	11500	95	64 - 145
Manganese	314		49.6	368.8	111	40 - 200
Molybdenum	0.25	U	99.2	87.74	88	75 - 103
Nickel	18.9		49.6	60.37	84	61 - 126
Potassium	1400		4960	6115	95	56 - 172
Selenium	0.84	U	198	173.5	87	76 - 104
Silicon	285		992	432.3	15	20 - 200
Silver	0.16	U	4.96	5.07	102	75 - 141
Sodium	289		4960	4962	94	78 - 111
Vanadium	40.6		49.6	90.68	101	50 - 169

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Duplicate - Batch: 280-268612**

**Method: 6010B**  
**Preparation: 3050B**

Lab Sample ID:	280-66649-1	Analysis Batch:	280-268885	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-268612	Lab File ID:	25D031915.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.13 g
Analysis Date:	03/19/2015 1927	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/19/2015 0815				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	10800		10630	1	40	
Antimony	0.37	U	0.36	NC	40	U
Arsenic	5.0		4.55	9	30	
Barium	92.6		93.87	1	30	
Beryllium	0.31		0.319	4	30	
Boron	2.4		2.08	14	30	
Cadmium	0.19		0.172	8	30	B
Calcium	7130		6853	4	30	
Chromium	21.5		22.00	2	40	
Cobalt	6.7		6.49	4	30	
Magnesium	6770		6462	5	30	
Manganese	314		300.6	4	40	
Molybdenum	0.25	U	0.25	NC	30	U
Nickel	18.9		18.58	2	30	
Potassium	1400		1371	2	40	
Selenium	0.84	U	0.82	NC	30	U
Silicon	285		308.8	8	40	
Silver	0.16	U	0.158	NC	30	B
Sodium	289		279.5	3	30	
Vanadium	40.6		39.61	2	30	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

### Method Blank - Batch: 280-269504

**Method: 6010B**  
**Preparation: 3050B**

Lab Sample ID:	MB 280-269504/1-A	Analysis Batch:	280-269682	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-269504	Lab File ID:	26AA032515.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	03/25/2015 1348	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/25/2015 0830				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Copper	0.298	B	0.22	1.0
Iron	3.8	U	3.8	5.0
Lead	0.27	U	0.27	0.50
Zinc	0.40	U	0.40	1.0

### Lab Control Sample - Batch: 280-269504

**Method: 6010B**  
**Preparation: 3050B**

Lab Sample ID:	LCS 280-269504/2-A	Analysis Batch:	280-269682	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-269504	Lab File ID:	26AA032515.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	03/25/2015 1350	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/25/2015 0830				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Copper	25.0	24.98	100	88 - 110	
Iron	100	93.62	94	87 - 120	
Lead	50.0	47.53	95	86 - 110	
Zinc	50.0	45.19	90	76 - 114	

### Matrix Spike - Batch: 280-269504

**Method: 6010B**  
**Preparation: 3050B**

Lab Sample ID:	280-66649-1	Analysis Batch:	280-269682	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-269504	Lab File ID:	26AA032515.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.01 g
Analysis Date:	03/25/2015 1400	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/25/2015 0830				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Copper	15.8	26.8	42.11	98	37 - 187	
Iron	18200	107	19500	1261	70 - 200	4
Lead	5.3	53.5	52.68	88	70 - 200	
Zinc	44.0	53.5	92.71	91	70 - 200	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Duplicate - Batch: 280-269504**

**Method: 6010B**  
**Preparation: 3050B**

Lab Sample ID:	280-66649-1	Analysis Batch:	280-269682	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-269504	Lab File ID:	26AA032515.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.01 g
Analysis Date:	03/25/2015 1358	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/25/2015 0830				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Copper	15.8	16.29	3	30	
Iron	18200	18550	2	40	
Lead	5.3	5.67	6	40	
Zinc	44.0	45.47	3	40	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Method Blank - Batch: 280-268692**

**Method: 7471A**  
**Preparation: 7471A**

Lab Sample ID:	MB 280-268692/1-A	Analysis Batch:	280-268911	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-268692	Lab File ID:	150319ac.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	03/19/2015 1526	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

**Lab Control Sample - Batch: 280-268692**

**Method: 7471A**  
**Preparation: 7471A**

Lab Sample ID:	LCS 280-268692/2-A	Analysis Batch:	280-268911	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-268692	Lab File ID:	150319ac.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	03/19/2015 1528	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.431	103	87 - 111	

**Matrix Spike - Batch: 280-268692**

**Method: 7471A**  
**Preparation: 7471A**

Lab Sample ID:	280-66649-1	Analysis Batch:	280-268911	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-268692	Lab File ID:	150319ac.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.56 g
Analysis Date:	03/19/2015 1535	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0063	U	0.483	104	87 - 111	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Duplicate - Batch: 280-268692**

**Method: 7471A**  
**Preparation: 7471A**

Lab Sample ID:	280-66649-1	Analysis Batch:	280-268911	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-268692	Lab File ID:	150319ac.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.55 g
Analysis Date:	03/19/2015 1533	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0063	U	0.0065	NC	20	U

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Method Blank - Batch: 280-269379**

**Method: 353.2**  
**Preparation: N/A**

Lab Sample ID:	MB 280-269277/1-A	Analysis Batch:	280-269379	Instrument ID:	WC_AlP 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	280-269277	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1551	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/23/2015 1028				

Analyte	Result	Qual	MDL	RL
Nitrate Nitrite as N-Soluble	0.36	U	0.36	0.75

**Method Reporting Limit Check - Batch: 280-269379**

**Method: 353.2**  
**Preparation: N/A**

Lab Sample ID:	MRL 280-269379/18	Analysis Batch:	280-269379	Instrument ID:	WC_AlP 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	03/23/2015 1259	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.100	0.0797	80	50 - 150	B

**Lab Control Sample - Batch: 280-269379**

**Method: 353.2**  
**Preparation: N/A**

Lab Sample ID:	LCS 280-269277/2-A	Analysis Batch:	280-269379	Instrument ID:	WC_AlP 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	280-269277	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1553	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/23/2015 1028				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	49.7	50.53	102	90 - 110	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

### Matrix Spike - Batch: 280-269379

**Method: 353.2**  
**Preparation: N/A**

Lab Sample ID:	280-66649-1	Analysis Batch:	280-269379	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	280-269277	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1559	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/23/2015 1028				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.89	42.6	45.63	105	90 - 110	

### Duplicate - Batch: 280-269379

**Method: 353.2**  
**Preparation: N/A**

Lab Sample ID:	280-66649-1	Analysis Batch:	280-269379	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	280-269277	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1557	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/23/2015 1028				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	0.89	0.680	27	10	B M

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

**Duplicate - Batch: 280-269296**

**Method: D-2216**

**Preparation: N/A**

Lab Sample ID:	280-66649-1	Analysis Batch:	280-269296	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1155	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	7.5	7.6	2	20	

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>GC Semi VOA</b>					
<b>Prep Batch: 280-268776</b>					
LCS 280-268776/2-A	Lab Control Sample	T	Solid	3550C	
MB 280-268776/1-A	Method Blank	T	Solid	3550C	
280-66649-1	J1V461	T	Solid	3550C	
280-66649-1MS	Matrix Spike	T	Solid	3550C	
280-66649-1MSD	Matrix Spike Duplicate	T	Solid	3550C	
<b>Prep Batch: 280-268817</b>					
LCS 280-268817/2-A	Lab Control Sample	T	Solid	3550C	
MB 280-268817/1-A	Method Blank	T	Solid	3550C	
280-66649-1	J1V461	T	Solid	3550C	
280-66649-1MS	Matrix Spike	T	Solid	3550C	
280-66649-1MSD	Matrix Spike Duplicate	T	Solid	3550C	
<b>Analysis Batch:280-268917</b>					
LCS 280-268817/2-A	Lab Control Sample	T	Solid	8082	280-268817
MB 280-268817/1-A	Method Blank	T	Solid	8082	280-268817
280-66649-1	J1V461	T	Solid	8082	280-268817
280-66649-1MS	Matrix Spike	T	Solid	8082	280-268817
280-66649-1MSD	Matrix Spike Duplicate	T	Solid	8082	280-268817
<b>Analysis Batch:280-268949</b>					
LCS 280-268776/2-A	Lab Control Sample	T	Solid	8081A	280-268776
MB 280-268776/1-A	Method Blank	T	Solid	8081A	280-268776
280-66649-1	J1V461	T	Solid	8081A	280-268776
280-66649-1MS	Matrix Spike	T	Solid	8081A	280-268776
280-66649-1MSD	Matrix Spike Duplicate	T	Solid	8081A	280-268776

#### Report Basis

T = Total

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1

Sdg Number: JP0920

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>Metals</b>					
<b>Prep Batch: 280-268612</b>					
LCS 280-268612/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-268612/1-A	Method Blank	T	Solid	3050B	
280-66649-1	J1V461	T	Solid	3050B	
280-66649-1DU	Duplicate	T	Solid	3050B	
280-66649-1MS	Matrix Spike	T	Solid	3050B	
<b>Prep Batch: 280-268692</b>					
LCS 280-268692/2-A	Lab Control Sample	T	Solid	7471A	
MB 280-268692/1-A	Method Blank	T	Solid	7471A	
280-66649-1	J1V461	T	Solid	7471A	
280-66649-1DU	Duplicate	T	Solid	7471A	
280-66649-1MS	Matrix Spike	T	Solid	7471A	
<b>Analysis Batch:280-268885</b>					
LCS 280-268612/2-A	Lab Control Sample	T	Solid	6010B	280-268612
MB 280-268612/1-A	Method Blank	T	Solid	6010B	280-268612
280-66649-1	J1V461	T	Solid	6010B	280-268612
280-66649-1DU	Duplicate	T	Solid	6010B	280-268612
280-66649-1MS	Matrix Spike	T	Solid	6010B	280-268612
<b>Analysis Batch:280-268911</b>					
LCS 280-268692/2-A	Lab Control Sample	T	Solid	7471A	280-268692
MB 280-268692/1-A	Method Blank	T	Solid	7471A	280-268692
280-66649-1	J1V461	T	Solid	7471A	280-268692
280-66649-1DU	Duplicate	T	Solid	7471A	280-268692
280-66649-1MS	Matrix Spike	T	Solid	7471A	280-268692
<b>Prep Batch: 280-269504</b>					
LCS 280-269504/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-269504/1-A	Method Blank	T	Solid	3050B	
280-66649-1	J1V461	T	Solid	3050B	
280-66649-1DU	Duplicate	T	Solid	3050B	
280-66649-1MS	Matrix Spike	T	Solid	3050B	
<b>Analysis Batch:280-269682</b>					
LCS 280-269504/2-A	Lab Control Sample	T	Solid	6010B	280-269504
MB 280-269504/1-A	Method Blank	T	Solid	6010B	280-269504
280-66649-1	J1V461	T	Solid	6010B	280-269504
280-66649-1DU	Duplicate	T	Solid	6010B	280-269504
280-66649-1MS	Matrix Spike	T	Solid	6010B	280-269504

#### Report Basis

T = Total

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-66649-1  
Sdg Number: JP0920

### QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
<b>General Chemistry</b>					
<b>Prep Batch: 280-269277</b>					
LCS 280-269277/2-A	Lab Control Sample	S	Solid	DI Leach	
MB 280-269277/1-A	Method Blank	S	Solid	DI Leach	
280-66649-1	J1V461	S	Solid	DI Leach	
280-66649-1DU	Duplicate	S	Solid	DI Leach	
280-66649-1MS	Matrix Spike	S	Solid	DI Leach	
<b>Analysis Batch:280-269296</b>					
280-66649-1	J1V461	T	Solid	D-2216	
280-66649-1DU	Duplicate	T	Solid	D-2216	
<b>Analysis Batch:280-269379</b>					
LCS 280-269277/2-A	Lab Control Sample	S	Solid	353.2	
MB 280-269277/1-A	Method Blank	S	Solid	353.2	
280-66649-1	J1V461	S	Solid	353.2	
280-66649-1DU	Duplicate	S	Solid	353.2	
280-66649-1MS	Matrix Spike	S	Solid	353.2	
<b>Report Basis</b>					
S = Soluble					
T = Total					
<b>HPLC/IC</b>					
<b>Prep Batch: 280-268797</b>					
LCS 280-268797/2-A	Lab Control Sample	T	Solid	3550C	
MB 280-268797/1-A	Method Blank	T	Solid	3550C	
280-66649-1	J1V461	T	Solid	3550C	
280-66649-1MS	Matrix Spike	T	Solid	3550C	
280-66649-1MSD	Matrix Spike Duplicate	T	Solid	3550C	
<b>Analysis Batch:280-268877</b>					
LCS 280-268797/2-A	Lab Control Sample	T	Solid	8310	280-268797
MB 280-268797/1-A	Method Blank	T	Solid	8310	280-268797
280-66649-1	J1V461	T	Solid	8310	280-268797
280-66649-1MS	Matrix Spike	T	Solid	8310	280-268797
280-66649-1MSD	Matrix Spike Duplicate	T	Solid	8310	280-268797
<b>Report Basis</b>					
T = Total					

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST										RC-107-129		Page 1 of 2 Data Turnaround 7 days		
Collector STOWE, QG	Company Contact Joan Kessner	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 83	SAF No. RC-107	Method of Shipment Commercial Carrier	F-22 EX									
Project Designation 100-H Field Remediation	Sampling Location 100-H-28-5 Pipeline (replacement samples)	Field Logbook No. EL-1627-09	[COA] 01H2852000	Offsite Property No. # 131 393		Bill of Lading/Air Bill No. S-22 OSRC										
Ice Chest No. <i>HCH - 08-072</i>	Other Labs Shipped To TestAmerica Denver	Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	aG	aG	aG	aG	aG	aG	280-66649 Chain of Custody		
POSSIBLE SAMPLE HAZARDS/REMARKS N/A		Type of Container	G/P	G/P	G/P	G/P	G/P									
Special Handling and/or Storage Cool 4C		No. of Container(s)	1	1	1	1	1									
Page		Sample No.	Matrix	Sample Date	Sample Time											
J1V459		<del>SOIL</del>														
<del>J1V460</del>		<del>SOIL</del>														
J1V461		<del>SOIL</del>	03/16/15	1101	X	X	X	X	X	X	X	X	X			
J1V462		<del>SOIL</del>														
J1V463		<del>SOIL</del>														
SPECIAL INSTRUCTIONS																
(1) ICP Metals - 6010R (Close-out List) [Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc]; Mercury - 7471 - (CV)																
REMOVED BY / REMOVED FROM DATE/TIME SIGN/PRINT NAMES																
Relinquished By/Removed From <i>Army Stoel</i>		Date/Time 3-16-15	Received By/Stored In <i>3-16-15</i>	Date/Time 3-16-15	Received By/Stored In <i>3-16-15</i>	Date/Time 3-16-15	Received By/Stored In <i>3-16-15</i>	Date/Time 3-16-15	Received By/Stored In <i>3-16-15</i>	Date/Time 3-16-15	Received By/Stored In <i>3-16-15</i>	Date/Time 3-16-15	Received By/Stored In <i>3-16-15</i>			
Relinquished By/Removed From <i>C. Birmingham</i>		Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>			
Relinquished By/Removed From <i>C. Birmingham</i>		Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/16/15	Received By/Stored In <i>C. Birmingham</i>			
Relinquished By/Removed From <i>100-Battle Ridge</i>		Date/Time 3/17/15	Received By/Stored In <i>100-Battle Ridge</i>	Date/Time 3/17/15	Received By/Stored In <i>100-Battle Ridge</i>	Date/Time 3/17/15	Received By/Stored In <i>100-Battle Ridge</i>	Date/Time 3/17/15	Received By/Stored In <i>100-Battle Ridge</i>	Date/Time 3/17/15	Received By/Stored In <i>100-Battle Ridge</i>	Date/Time 3/17/15	Received By/Stored In <i>100-Battle Ridge</i>			
Relinquished By/Removed From <i>C. Birmingham</i>		Date/Time 3/17/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/17/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/17/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/17/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/17/15	Received By/Stored In <i>C. Birmingham</i>	Date/Time 3/17/15	Received By/Stored In <i>C. Birmingham</i>			
Relinquished By/Removed From <i>Test America Inc.</i>		Date/Time 3/17/15	Received By/Stored In <i>Test America Inc.</i>	Date/Time 3/17/15	Received By/Stored In <i>Test America Inc.</i>	Date/Time 3/17/15	Received By/Stored In <i>Test America Inc.</i>	Date/Time 3/17/15	Received By/Stored In <i>Test America Inc.</i>	Date/Time 3/17/15	Received By/Stored In <i>Test America Inc.</i>	Date/Time 3/17/15	Received By/Stored In <i>Test America Inc.</i>			
Relinquished By/Removed From <i>K-WH-EE-011</i>		Date/Time 3/17/15	Received By/Stored In <i>K-WH-EE-011</i>	Date/Time 3/17/15	Received By/Stored In <i>K-WH-EE-011</i>	Date/Time 3/17/15	Received By/Stored In <i>K-WH-EE-011</i>	Date/Time 3/17/15	Received By/Stored In <i>K-WH-EE-011</i>	Date/Time 3/17/15	Received By/Stored In <i>K-WH-EE-011</i>	Date/Time 3/17/15	Received By/Stored In <i>K-WH-EE-011</i>			
FINAL SAMPLE DISPOSITION		Disposal Method														
WCH-EE-011																



JP0920

90 w/permission

Project 28002142

Report Due: 3/25/2015 3-19-15

TALS TAT: Rush Sdy

Temp 21 IR# 5  
CF +0.2 Initials (LP)  
Date: 03/18/15

## Sample Check-in List

Date/Time Received: 0915 18Mar15 GM Screen Result 15 microR/hr

Client: Washington Closure Hanford SDG #: JP0920 NA [ ] SAF #: RC-107 NA [ ]

Job Number: 6649 Chain of Custody # RC-107-129

Shipping Container ID: WCH-68-072 Air Bill # 7731 45100 7909

1. Custody Seals on shipping container intact? NA [ ] Yes  No [ ]
2. Custody Seals dated and signed? NA [ ] Yes  No [ ]
3. Chain of Custody record present? NA [ ] Yes  No [ ]
4. Cooler Temperature °C: 21 (23 overall) NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry
6. Number of samples in shipping container: 41
7. Sample holding times exceeded? 3/18/15 NA [ ] Yes [ ] No
8. Samples have:
  - Tape
  - Custody Seals Hazard Labels  
 Appropriate Sample Labels
9. Samples are:
  - In Good Condition
  - Broken Leaking  
 Have Air Bubbles  
 (Only for samples requiring no head space.)
10. Sample pH taken?  pH<2 [ ] pH>2 [ ] pH>9 [ ] Amount HNO<sub>3</sub> Added \_\_\_\_\_
11. Sample Location, Sample Collector Listed? \* Y  
 \*For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No
13. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian: AS Date: 18Mar15

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on \_\_\_\_\_ by \_\_\_\_\_ Person Contacted \_\_\_\_\_

[ ] No action necessary; process as is.

Project Manager Darlene Bendy Date 3-19-15

From: (500) 376-7492  
1102 Shipping  
US DOE c/o WCH  
2355 Stevens Dr  
Richland, WA 99354

Origin ID: PSCA



Ship Date: 17MAR15  
ActWgt: 65.0 LB  
CAD: 105268502/INET3610

SHIP TO: (303) 736-0180  
**Kae Yoder**  
TestAmerica  
4955 Yarrow St.  
A131393  
ARVADA, CO 80002

BILL THIRD PARTY

Delivery Address Bar Code

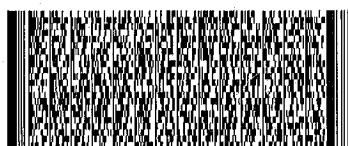


Ref# 000N902000  
Invoice #  
PO #  
Dept #

WED - 18 MAR 10:30A  
PRIORITY OVERNIGHT

TRK# 7731 4546 7909  
0201

80002  
CO-US  
DEN



637J1070AEE4B

**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

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